THE HONORABLE JAMES L. ROBART

IN THE UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF WASHINGTON
AT SEATTLE

MICROSOFT CORPORATION,

Plaintiff,

vs.

MOTOROLA, INC., et al.,

Defendants.

MOTOROLA MOBILITY LLC, et al.,

Plaintiffs,

vs.

MICROSOFT CORPORATION,

Defendant.

Case No. C10-1823-JLR

EXCERPTS OF PRIOR COURT ORDERS UPON WHICH MICROSOFT INTENDS TO RELY AT TRIAL

Pursuant to the Court's request at the August 13, 2013 Pretrial Conference, Microsoft respectfully submits the following excerpts from the Court's prior orders that Microsoft presently intends to introduce at trial. Microsoft specifically reserves the right to introduce other findings and excerpts as necessary at trial.

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A. The Court's April 19, 2013 Findings of Fact and Conclusions of Law (ECF 673)

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10	SSOs are voluntary membership organizations whose participants engage in the development of industry standards, including telecommunication and information technology standards. (See, e.g., 11/16/12 Tr. (Dkt. # 631) at 15:15-20 (Simcoe Testimony).)
11	SSOs "play a significant role in the technology market by allowing companies to agree on common technological standards so that all compliant products will work together." (6/6/12 Order (Dkt. # 335) at 3.)
12	Standards lower costs by increasing product manufacturing volume, and they increase price competition by eliminating switching costs for consumers who want to switch from products manufactured by one firm to those manufactured by another. (6/6/12 Order at 3.)
13	SSOs seek to promote widespread adoption of their standards because the interoperability benefits of standards depend on broad implementation. (11/16/12 Tr. at 15:15-20 (Simcoe Testimony); 11/19/12 Tr. (Dkt. # 632) at 136:25-137:3 (Schmalensee Testimony).)
14	SSOs also seek to develop standards that incorporate technology that will make the standard attractive to implementers, while at the same time ensuring a feasible price to those same implementers to promote broad implementation.5 (11/13/12 Tr. (Dkt. # 629) at 167 (Murphy Testimony); 11/19/12 Tr. at 137:4-8 (Schmalensee Testimony).)
15	Industry participants in the standard-setting process enjoy significant potential benefits to having their technology incorporated into a standard independent of potential royalty income from licensing patents they own. These non-income benefits can include increased demand for participants' products, advantages flowing from familiarity with the contributed technology potentially leading to shorter development lead times, and improved compatibility with proprietary products using the standard. (11/16/12 Tr. at 39-40 (Simcoe Testimony).)
16	This case concerns two standards: the 802.11 Standard and the H.264 Standard. The 802.11 Standard is a wireless communication standard that has been developed over a period of years by the IEEE. (See, e.g., 11/15/12 Tr. (Dkt. # 633 (sealed), Dkt. # 634 (redacted)) at 91:10-12, 92:14-93:11 (Gibson Testimony).) Two different organizations, the International Organization for Standardization and the International Electrotechnical Commission ("ISO/IEC"), and ITU, jointly developed the H.264 Standard, which relates to video compression. (See, e.g., 11/13/12 Tr. at 210:24-211:21; 213:7-214:1; 214:11-12 (Sullivan Testimony).)
17	The engineers that develop industry standards typically do not know if the use of the technology they are considering implicates a patent or patents. (11/16/12 Tr. at 17:5-8 (Simcoe Testimony).)
18	For example, Gary Sullivan, Co-chairman of the Joint Video Team ("JVT") that developed the H.264 video compression standard, did not analyze any particular patents in his work on the standard. (11/14/12 Tr. (Dkt. # 630) at 44:4-21 (Sullivan Testimony).)
19	Similarly, Ajay Luthra, the other Co-chairman of the JVT, did not provide other participants with information about relevant Motorola patents. (11/19/12 Tr. at 22:6-12 (Luthra Testimony).)

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20	Much of the technology that is incorporated into industry standards is not patented. (11/16/12 Tr. at 17:9-12 (Simcoe Testimony).)
21	For example, many of the core innovations of the H.264 Standard were made by Telenor Group, which did not obtain patents on the technology that it contributed and made its contributions available to all implementers of the standard without patent licensing restrictions. (11/13/12 Tr. at 215:12-18 (Sullivan Testimony); 11/14/12 Tr. 114:21-115:5 (Orchard Testimony).)
22	Likewise, the 802.11 Standard was based in part on a long history of publicly-shared research and development by companies, government agencies, and academic institutions. (11/15/12 Tr. at 96:16-24 (Gibson Testimony).)
23	Nevertheless, using a standard frequently does require use of patented technology. (See, e.g., Ex. 1152 (listing more than 2,400 patents determined to be essential to the H.264 Standard); 11/16/12 Tr. 108:21-109:9 (Lynde Testimony) (stating that there are probably thousands of patents essential to the 802.11 Standard).)
25	As the court has previously found: "In order to reduce the likelihood that owners of [standard] essential patents will abuse their market power, many standard setting organizations, including the IEEE and ITU, have adopted rules relating to the disclosure and licensing of essential patents. The policies often require or encourage members of the standards setting organizations to identify patents that are essential to a proposed standard and to agree to license their essential patents on reasonable and non-discriminatory ("RAND") terms to anyone who requests a license. Such rules help to ensure that standards do not allow essential patent owners to extort their competitors or prevent competitors from entering the marketplace." (6/6/12 Order at 3-4; see also Ex. 1414 at 28,036-37 (describing basic elements of SSO intellectual property policies); 11/16/12 Tr. at 19:3-24, 21:24-23:7 (Simcoe Testimony) (same); Exs. 1575 (Guidelines for Implementation of Common Patent Policy of the ITU-T/ITU-R/ISO/IEC) and 1568 (IEEE-SA Standards Board By-Laws).)
26	The ITU and ISO/IEC maintain a common patent policy (the "ITU/ISO/IEC Common Patent Policy"), which constitutes the "code of practice" regarding patents covering subject matters of "Recommendations" and "Deliverables" of the respective SSOs. (Ex. 1575 at MOTM_WASH1823_0602815.) The ITU/ISO/IEC Common Patent Policy states that "Recommendations" and "Deliverables" are drawn up by technical (and not patent) experts who may "not be very familiar with the complex international legal situation of intellectual property rights such as patents." (Id.)
27	The objective of "Recommendations" and "Deliverables" is to "ensure compatibility of technologies and systems on a worldwide basis." (Ex. 1575 at MOTM_WASH1823_0602815.) To meet this objective, "Recommendations" and "Deliverables" must be accessible to everybody. It follows then that the "sole objective" of the ITU/ISO/IEC Common Patent Policy is to ensure that "a patent embodied fully or partly in a Recommendation | Deliverable must be accessible to everybody without undue constraints." (Id. at MOTM_WASH1823_0602815.)

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29	Once a patent holder has disclosed a potentially essential patent or has made a blanket disclosure stating that one or more of its patents may be essential to a proposed standard, the ITU will seek a licensing commitment from the patent-holder using a standardized intellectual property rights ("IPR") disclosure form. The ITU refers to such an assurance as a "Patent Statement and Licensing Declaration." (See, e.g., Exs. 2838, 2839.) In practice, this assurance is often referred to as a "Letter of Assurance," or an "LOA" for short.
30	The ITU LOA provides three options to the patent holder: (1) the patent holder may commit to license its essential patent(s) on a royalty-free basis; (2) the patent holder may commit to license its essential patent(s) on RAND terms and conditions; or (3) the patent holder may decline to make any licensing commitment. (Ex. 1575 at MOTM_WASH1823_0602815, MOTM_WASH1823_0602818.)
31	If the owner of a declared essential patent declines to make a RAND or royalty-free licensing commitment, the ISO/IEC/ITU policy indicates that the approved standard "shall not include provisions depending on the patent." (Ex. 1575 at MOTM_WASH1823_0602815.)
32	With respect to licensing arrangements for SEPs, the ITU/ISO/IEC Common Patent Policy provides that "[t]he detailed arrangements arising from patents (licensing, royalties, etc.) are left to the parties concerned, as these arrangements might differ from case to case." (Ex. 1575 at MOTM_WASH1823_0602815.) Also, the ITU/ISO/IEC Common Patent Policy and its licensing declaration form further state that "negotiations are left to the parties concerned and are performed outside the [ITU]." (Id. at MOTM_WASH1823_0602815, MOTM_WASH1823_0602818.)
33	A patent holder willing to make a licensing commitment is given the option of making its commitment conditional on "reciprocity." (Ex. 1575 at MOTM_WASH1823_0602818.) The LOAs further state that "[a]s used herein, the word 'reciprocity' means that the Patent Holder shall only be required to license any prospective licensee if such prospective licensee will commit to license its essential patents(s) or essential patent claims for implementation of the same above document free of charge or under reasonable terms and conditions." (See, e.g., Ex. 2838 at MOTM_WASH1823_0000036; see also id. at MOTM_WASH1823_0000040, 046, 053, 057, 061.)
34	Under the ISO/IEC/ITU policy, when a patent holder has conditioned its licensing commitment on reciprocity, "the Patent Holder shall only be required to license any prospective licensee if such prospective licensee will commit to license its essential patent(s) or essential patent claim(s) for implementation of the same above document free of charge or under reasonable terms and conditions." (Ex. 1575 at MOTM_WASH1823_0602818.)
35	Motorola Mobility, its predecessors, and its wholly-owned subsidiary General Instrument submitted several intellectual property disclosures to the ITU in connection with the development of the H.264 Standard. (Ex. 2838.)
36	All of Motorola's LOAs indicated that it would "grant to an unrestricted number of applicants on a worldwide, non-discriminatory basis and on reasonable terms and conditions" licenses conditioned on reciprocity.6 (Ex. 2838 at MOTM_WASH1823_0000036, 039, 046, 053, 057, 061; 11/20/12 Tr. at 33:21-34:12

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	(Dailey Testimony).)
37	The IEEE Standards Association ("IEEE-SA") established the 802.11 Standard, which relates to WLAN and is the second of the standards at issue here.
38	The intellectual property policy of the IEEE is set forth in the IEEE-SA Standards Board Bylaws and the IEEE Standards Operations Manual (collectively, the "IEEE IPR Policy"). (11/16/12 Tr. at 27:22-28:9 (Simcoe Testimony); Ex. 1568 at MS-MOTO_1823_00004073082; Ex. 1130 at MS-MOTO_1823_00005246469.)
39	The IEEE-SA Standards Board Bylaws provide that IEEE standards may include "Essential Patent Claims," which it defines as "any Patent Claim the use of which was necessary to create a compliant implementation of either mandatory or optional portions of the normative clauses of the [Proposed] IEEE Standard when, at the time of the [Proposed] IEEE Standard's approval, there was no commercially and technically non-infringing alternative." (Ex. 1568 at MS-MOTO 1823 00004073097 (§ 6.2).)
40	The IEEE-SA Standards Board Bylaws indicate that "[i]f the IEEE receives notice that a [Proposed] IEEE Standard may require the use of a potential Essential Patent Claim, the IEEE shall request licensing assurance, on the IEEE Standards Board approved Letter of Assurance form, from the patent holder or patent applicant." (Ex. 1568 at MS-MOTO_1823_000040730976 (§ 6.2).) This Letter of Assurance form is the IEEE version of an LOA.
41	The IEEE LOA form allows declared essential patent holders to provide either "[a] general disclaimer to the effect that the Submitter without conditions will not enforce any present or future Essential Patent Claims" or "[a] statement that a license for a compliant implementation of the standard will be made available to an unrestricted number of applicants on a worldwide basis without compensation or under reasonable rates, with reasonable terms and conditions that are demonstrably free of any unfair discrimination." (Ex. 1568 at MS-MOTO_1823_000040730977 (§ 6.2).) The latter option constitutes the IEEE RAND commitment for "Essential Patent Claims," or SEPs.
42	The IEEE LOA form allows, but does not require, the disclosure of specific patents or pending patent applications that may be or become essential to the standard under consideration. (11/16/12 Tr. at 19:3:24 (Simcoe Testimony); 11/16/12 Tr. at 108:21-109:4 (Lynde Testimony).)
43	An IEEE LOA from an SEP holder that commits to license unspecified patents or pending applications for a particular standard is called a "blanket" disclosure. (11/16/12 Tr. at 19:21-24 (Simcoe Testimony); 11/16/12 Tr. at 108:21-109:4 (Lynde Testimony).)
44	Motorola and Symbol Technologies submitted numerous blanket LOAs to the IEEE in relation to the 802.11 Standard. (Exs. 1407, 2839.) With these LOAs, Motorola and Symbol agreed to grant, on reasonable terms and conditions, licenses to their patents that are essential to the 802.11 Standard on a worldwide and non-discriminatory basis. (11/20/12 Tr. at 32:19-23 (Dailey Testimony).)
46	Symbol and Motorola submitted their first blanket LOAs committing to license their patents essential to the 802.11 Standard in 1993 and 1994, respectively. (Ex. 1407 (Symbol Letter of Assurance dated 11/8/1993); Ex. 2839 at MOTM_WASH1823_0000004 (Motorola Letter of Assurance dated 3/1/1994).)

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47	The IEEE Operations Manual in place at the time that Motorola and Symbol made their initial 802.11 RAND commitments provided that "[p]atent holders shall submit to the Patent Committee of the IEEE Standards Board, prior to any significant drafting of the standard, a draft of their license that assures that the technology will be made available at nominal competitive costs to all who seek to use it for compliance with an incorporated IEEE standard." (Ex. 1130 at MS-MOTO_1823_00005246490 (§ 6.3.2) (emphasis added).)
48	The requirement to license at nominal competitive costs was part of the RAND commitment at the time Motorola and Symbol first committed to license their 802.11 SEPs on RAND terms. (11/16/12 Tr. at 28:10-30:9 (Simcoe Testimony).)
51	The purpose of the RAND commitment is to encourage widespread adoption of the standard. (11/13/12 Tr. at 147:19-21 (Murphy Testimony).)
52	When the standard becomes widely used, the holders of SEPs obtain substantial leverage to demand more than the value of their specific patented technology. This is so even if there were equally good alternatives to that technology available when the original standard was adopted. After the standard is widely implemented, switching to those alternatives is either no longer viable or would be very costly. (11/13/12 Tr. at 140:2-23, 141:18-23 (Murphy Testimony); Ex. 1414 at 28036.)
53	A given patent is "essential" to a standard if use of the standard requires infringement of the patent, even if acceptable alternatives of that patent could have been written into the standard. (11/16/12 Tr. at 18:9-21 (Simcoe Testimony); 11/13/12 Tr. at 199:11-200:15 (Murphy Testimony).)
54	SSOs define a patent as essential even if the patent only reads onto an optional portion of the standard. (11/16/12 Tr. at 18:1-6 (Simcoe Testimony).)
55	The ability of a holder of an SEP to demand more than the value of its patented technology and to attempt to capture the value of the standard itself is referred to as patent "hold-up." (11/13/12 Tr. at 140:2-23, 141:18-23 (Murphy Testimony); Ex. 1414 at 28036; see also 11/19/12 Tr. 166:24-167:22 (Schmalensee Testimony) (explaining that the "essence of hold-up" is that while ex ante competition constrains what a patent holder can obtain for access to its patent, ex post, the technology in the standard does not face that competition).)
56	The threat of hold-up increases as the standard becomes more widely implemented and firms make sunk cost investments that cannot be recovered if they are forced to forego implementation of the standard or the standard is changed. (11/13/12 Tr. at 143:1-18 (Murphy Testimony); 11/16/12 Tr. at 86:20-87:2 (Lynde Testimony).)
57	Hold-up can threaten the diffusion of valuable standards and undermine the standard-setting process. (Ex. 1414 at 28036; 11/13/12 Tr. at 144:25-145:11, 147:22-148:13 (Murphy Testimony).)
58	In addition to harming firms that are forced to pay higher royalties, hold-up also harms consumers to the extent that those excess costs are passed onto them. (Ex. 1414 at 28036; 11/13/12 Tr. at 144:25-145:6, 147:22-148:13 (Murphy Testimony).)
59	Hold-up by one SEP holder also harms other firms that hold SEPs relating to the same standard because it jeopardizes further adoption of the standard and limits the ability of those other holders to obtain appropriate royalties on their technology. (11/13/12 Tr. at

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	144:25-145:11 (Murphy Testimony).)
60	Indeed, Motorola's expert, Dr. Richard Schmalensee, acknowledged that "the RAND commitment and the whole apparatus exists [sic] to deal with hold-up." (11/19/12 Tr. at 142:13-16, 157:20-23 (Schmalensee Testimony).)
61	Similarly, the Federal Trade Commission ("FTC") has stated that "[t]he most common mechanism used by SSOs to attempt to prevent patent hold-up is the RAND commitment." (Ex. 1414 at 28037.)
62	Complex industry standards like the H.264 and 802.11 Standards can require the use of hundreds or thousands of SEPs held by dozens of patent holders. (Exs. 1150-54 (listing patents claimed or determined to be essential to the H.264 Standard and patent holders that made blanket disclosures); Exs. 1156, 1158-59, 1164 (listing patents claimed or determined to be essential to the 802.11 Standard and patent holders that made blanket disclosures); 11/16/12 Tr. at 108:21-109:8 (Lynde Testimony) (the number of SEPs related to the 802.11 Standard "generally is acknowledged to be in the thousands").)
63	High-tech products can comply with dozens or even hundreds of different standards. For example, a typical personal computer ("PC") implements as many as 90 different formal standards and over 100 informal interoperability standards. (11/16/12 Tr. at 128:2-10 (Lynde Testimony).)
64	In the context of standards having many SEPs and products that comply with multiple standards, the risk of the use of post-adoption leverage to exact excessive royalties is compounded by the number of potential licensors and can result in cumulative royalty payments that can undermine the standards. (11/13/12 Tr. at 141:24-142:22, 145:12-146:14 (Murphy Testimony); 11/16/12 Tr. at 127:23-128:10 (Lynde Testimony).)
65	The payment of excessive royalties to many different holders of SEPs is referred to as "royalty stacking." (11/13/12 Tr. at 141:24-142:22 (Murphy Testimony).)
66	The RAND commitment also addresses royalty stacking and the need to ensure that the aggregate royalties associated with a given standard are reasonable. (11/13/12 Tr. at 146:15-147:2 (Murphy Testimony); 11/16/12 Tr. at 15:14-16:7 (Simcoe Testimony).)
67	Indeed, Motorola emphasized the risk of royalty stacking in the standards context in a submission it made (together with Nokia and Ericsson) to the European Telecommunications Standards Institute ("ETSI") in 2006. (Ex. 1031 at MOTM_WASH1823_0420998 ("cumulative royalties are perceived to be uncertain and often too high, possibly even prohibitive"); 11/16/12 Tr. at 25:16-24 (Simcoe Testimony).) In its ETSI submission, Motorola recited a commonly understood purpose that RAND commitments be interpreted to require patent holders "to grant licenses on terms that are objectively commercially reasonable taking into account the overall licensing situation and including the cost of obtaining all necessary licenses from all other relevant patent holders for the technologies in the end product." (Ex. 1031 at MOTM_WASH1823_0420999; 11/16/12 Tr. 25:25-26-22 (Simcoe Testimony) (agreeing with the statements contained in Motorola's ETSI submission).)
68	In the same submission, Motorola also explained a commonly understood principle of proportionality that "[c]ompensation under FRAND7 must reflect the patent owner's proportion of all essential patents. This is not simply a numeric equation but the compensation must, within reasonable bounds, reflect the contribution." (Ex. 1031 at

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	MOTM_WASH1823_0420999; 11/16/12 Tr. 25:25-26:22 (Simcoe Testimony) (agreeing with the statements contained in Motorola's ETSI submission).)
69	Motorola sought to "signal to judges in patent litigation that they can and should look at the overall cumulative royalty costs for a given standard and not just assess whether the terms being offered by one particular licensor are fair and reasonable in vacuo." (Ex. 1031 at MOTM_WASH1823_042999; 11/16/12 Tr. at 76:2-10 (Simcoe Testimony) (agreeing with statement contained in Motorola's ETSI submission).)
70	A RAND royalty should be set at a level consistent with the SSOs' goal of promoting widespread adoption of their standards. (11/13/12 Tr. at 139:17-140:1, 203:14-18 (Murphy Testimony).)
72	Likewise, a proper methodology for determining a RAND royalty should address the risk of royalty stacking by considering the aggregate royalties that would apply if other SEP holders made royalty demands of the implementer. (11/16/12 Tr. at 15:14-16:7, 44:10-13 (Simcoe Testimony); 11/13/12 Tr. at 203:14-19 (Murphy Testimony).)
74	From an economic perspective, a RAND commitment should be interpreted to limit a patent holder to a reasonable royalty on the economic value of its patented technology itself, apart from the value associated with incorporation of the patented technology into the standard. (11/13/12 Tr. at 151:19-153:21 (Murphy Testimony).) Motorola's expert, Dr. Schmalensee, agreed that if a company makes a RAND commitment, it is entitled only "to some ill-defined measure [of] return on the value of the [patented] property, but you are not entitled to the incremental value that you get because you are part of the standard." (11/19/12 Tr. at 168:21-169:8 (Schmalensee Testimony).)
100	Factor 1 examines the royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty. In the RAND context, such licensing royalties for a given patent(s) must be comparable to RAND licensing circumstances. In other words, to prove an established royalty rate for an SEP, the past royalty rates for a patent must be negotiated under the RAND obligation or a comparable negotiation. Thus, license agreements where the parties clearly understood the RAND obligation, and as discussed below, patent pools, will be relevant to a hypothetical negotiation for SEPs.
104	With respect to Factors 6 and 8, a reasonable royalty would not take into account the value to the licensee created by the existence of the standard itself, but would instead consider the contribution of the patent to the technical capabilities of the standard and also the contribution of those relevant technological capabilities to the implementer and the implementer's products. (See 11/13/12 Tr. at 144:12-17 (Murphy Testimony).) This is because there is substantial value in the agreed standard itself apart from any contribution of the patented technology to the standard, and the RAND commitment exists so that SEP patent holders cannot demand more than they contribute. (See id. at 151:21-152:23 (describing how RAND commitment limits reasonable royalty to that of contribution of patent and not value of the standard itself).)
108	Factor 12 states, "the portion of the profit or of the selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions." Georgia-Pacific, 318 F. Supp. at 1120. This factor must be viewed through the lens of business practices involving RAND commitments. In other words,

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	licensing fees for non-RAND committed patents customary in a business industry cannot form the basis for comparison. Instead, factor 12 must look to customary practices of businesses licensing RAND-committed patents.
109	Factor 13 looks at the portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer. As with many of the other factors, in the RAND context, it is critical to consider the contribution of the patented technology apart from the value of the patent as the result of its incorporation into the standard, the latter of which would improperly reward the SEP owner for the value of the standard itself. Rewarding the SEP owner with any of the value of the standard itself would constitute hold-up value and be contrary to the purpose behind the RAND commitment. (See 11/13/12 Tr. at 152:14-23 (Murphy Testimony).)
110	Factor 15 considers the amount that a licensor and a licensee would have agreed upon (at the time the infringement began) if both had been reasonably and voluntarily trying to reach an agreement. The SEP owner and the implementer would consider the RAND commitment and its purposes in their efforts to reach a license agreement. In trying to reach an agreement, the SEP owner would have been obligated to license its SEPs on RAND terms which necessarily must abide by the purpose of the RAND commitment of widespread adoption of the standard through avoidance of hold-up and stacking.
111	With respect to hold-up, the parties would examine a reasonable royalty rate under the RAND commitment based on the contribution of the patented technology to the capabilities of the standard, and in turn, the contribution of those capabilities of the standard to the implementer and the implementer's products. Thus, a patent that is extremely important and central to the standard would reasonably command a higher royalty rate than a less important patent. Importantly, however, because an "essential" patent is one that is necessary to implement either an optional or mandatory provision of a standard, a specific SEP may contribute greatly to an optional portion of a given standard, but if that portion is not used by the implementer, the specific SEP may have little value to the implementer.
112	With respect to stacking concerns, the parties attempting to reach an agreement would consider the overall licensing landscape in existence vis-à-vis the standard and the implementer's products. In other words, a RAND negotiation would not be conducted in a vacuum. The parties would instead consider other SEP holders and the royalty rate that each of these patent holders might seek from the implementer based the importance of these other patents to the standard and to the implementer's products.
114	Video compression is the process of transforming video into compressed video that requires less data storage than the original uncompressed video. (11/14/12 Tr. at 101 (Orchard Testimony).)
115	Video compression is important because modern digital video, particularly high definition video, requires immense amounts of data storage. (Id.)
116	Encoding compresses the original uncompressed video by turning it into a smaller file or stream that requires less storage capacity and less bandwidth to transmit. (Id.) Decoding turns an encoded smaller file back into an approximation of the original, uncompressed video. (Id.)

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129	The H.264 Standard is a video coding standard, also known as MPEG-4 Part 10, or AVC (Advanced Video Coding). (Ex. 421; Ex. 424 at 560.) The first version of the H.264 Standard was adopted in May 2003. (Ex. 610.)
133	H.264 is currently the most widely used video coding format. (Ex. 2515 at MOTM_WASH1823_0608878 ("[I]n the past four quarters, the H.264 format went from 31 percent of all videos to 66 percent, and is now the largest format by far."); Ex. 2747 at MOTM_WASH1823_0610702, 704; 11/20/12 Tr. at 15:16-16:23, 17:15-18:2 (Dansky Testimony).)
134	The ISO/IEC and the ITU, two SSOs, jointly developed the H.264 Standard. (11/13/12 Tr. at 208-09 (Sullivan Testimony).) The MPEG (Motion Picture Experts Group) video subgroup of ISO/IEC and the VCEG (Video Coding Experts Group) subgroup of ITU develop video compression standards. (Id. at 208.) VCEG performed the early development of what became the H.264 Standard. (Id. at 210-13.) As part of the development of the H.264 Standard, MPEG Video and VCEG created the JVT, a joint organization that finalized the H.264 video standard. (Id. at 208-09.)
154	The H.264 Standard resulted from the contributions of roughly 170 entities that submitted over 2,300 documents. (11/14/12 Tr. at 108 (Orchard Testimony).) H.264 is a large and technically complex standard developed with the goal of providing significantly improved compression compared to prior video standards. (Ex. 610; 11/13/12 Tr. at 211 (Sullivan Testimony).)
155	The largest technology contributor to the H.264 Standard was Telenor Group, which contributed many of the core innovations of H.264 and submitted the August 1999 proposal that became the basis of the first draft of the design. (11/13/12 Tr. at 215 (Sullivan Testimony); 11/14/12 Tr. at 115 (Orchard Testimony).) Telenor decided not to seek patents on its contributions and notified the JVT of its decision. (11/14/12 Tr. at 52 (Sullivan Testimony); 11/14/12 Tr. at 115 (Orchard Testimony).)
156	In addition to Telenor's contribution to the standard, there are at least 2,500 patents throughout the world that are essential to the H.264 Standard. (11/14/12 Tr. at 110-13 (Orchard Testimony).) Of those 2,500 patents, over 360 are United States patents. (See Ex. 1544.)
157	Approximately 33 United States companies have enumerated their declared-essential H.264 Patents. All of these patents are subject to the RAND commitment. Nineteen additional companies have provided "blanket" LOAs to the ITU obligating their patents to the RAND commitment. (See Ex. 1544.)
158	Motorola did not contribute to the VCEG draft H.264 design that MPEG evaluated in July 2001. (See 11/19/12 Tr. at 22 (Luthra Testimony).)
159	Rather, Motorola became interested in VCEG's work around mid-2001. (11/13/12 Tr. at 215 (Sullivan Testimony); Ex. 420 at 1; 11/19/12 Tr. at 21 (Luthra Testimony).) Motorola made its initial proposal at the first meeting of the JVT in December 2001, after MPEG and VCEG had already joined forces. (11/13/12 Tr. at 216 (Sullivan Testimony).) Additionally, Motorola employee Dr. Ajay Luthra began serving as one of the co-chairs of the JVT.8 (Ex. 424 at MOTM_WASH1823_0336722.)

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162	Accordingly, Motorola's role in H.264 development related almost entirely to interlaced video. (11/14/12 Tr. at 12 (Sullivan Testimony); 11/14/12 Tr. at 12, 109 (Orchard Testimony); Ex. 420 at 1.)
163	There are 16 Motorola U.S. patents, and many foreign counterparts to those patents, that are essential to the practice of the H.264 Standard. These 16 patents are distributed among 6 patent "families." (11/19/12 Tr. at 25:18-19 (Drabik Testimony).) [TABLE OF PATENTS]
260	Before doing so, however, having already concluded that 14 of the 16 Motorola H.264 SEPs are directed only to interlaced video, the court will discuss the importance of interlaced video to Microsoft's products. Then, on a product-by-product basis, the court will examine the value of all of Motorola's 16 SEPs vis-à-vis Microsoft's products.
261	In this section, the court recounts the evidence submitted at trial related to the importance of interlaced video in the marketplace. Based on the evidence, the court concludes that despite ample opportunity to do so at trial, Motorola presented little evidence that users of Microsoft products commonly encounter interlaced H.264 video. The court also concludes that although interlaced video is becoming less prevalent in the market, Motorola demonstrated that support for interlaced video in coding tools is important to Microsoft.
262	First, the evidence at trial demonstrated that Microsoft does not support interlaced H.264 video in many of its products. For example, Microsoft does not support interlaced H.264 video in its Xbox Live service, or its Silverlight, Zune, Lync, or Skype products. (11/15/12 Tr. at 20-21 (Del Castillo Testimony); 11/14/12 Tr. at 150-51 (Orchard Testimony).)
264	Second, it does not appear that major content providers often use interlaced video. For example, Motorola's parent company, Google, does not support interlaced H.264 video in its products. Although Motorola's expert, Dr. Drabik, did not know the "market reasons" why Google did not support interlaced coding for YouTube, he testified that "it might have something to do with how they [Google] see the future." (11/19/12 Tr. at 65 (Drabik Testimony).)
265	As another example, Google's Android operating system also does not support interlaced H.264 video. Instead, Android uses the Baseline profile of H.264 (Ex. 2115 at MOTM_WASH1823_0601853), which does not allow use of the interlaced coding tools (Ex. 574 at MS-MOTO_1823_00004052873 (field coding and adaptive frame/field coding excluded from Baseline profile); 11/14/12 Tr. at 19-20 (Sullivan Testimony).)
269	As explained above, Mr. Dansky's approach thus reflects an improper attempt by Motorola to capture the value of the H.264 Standard itself as opposed to a royalty on the actual economic value of Motorola's patented technology. (11/13/12 Tr. at 151-52 (Murphy Testimony) ("A RAND royalty must reflect the economic value of the patented technology itself and not the value attributable to the standard."); 11/19/12 Tr. at 168-69 (Schmalensee Testimony) (an SEP holder is "not entitled to the incremental value that you get because you are part of the standard").)
279	Accordingly, the court concludes that (1) interlaced video is becoming less prevalent in the marketplace; (2) little evidence suggests that users of Microsoft products often encounter interlaced video; (3) and Motorola demonstrated that support for interlaced video in coding tools is important to Microsoft so that its products will seamlessly play any video encountered by users.

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281	Windows is an operating system that "provides an abstraction over the hardware, and presents an application interface" so that "third parties can write programs that run on the computer." (11/13/12 Tr. at 25-26 (DeVaan Testimony).) With each version of Windows, Microsoft adds thousands of features which typically build on the capabilities of previous releases. (Id. at 28-29.) For example, the new features of Windows 7 are described in two voluminous books. (Exs. 1408-09.) Video encoding and decoding is only a tiny part of what the Windows software does and Windows supports many other video compression standards in addition to H.264. (11/13/12 Tr. at 34 (DeVaan Testimony).)
282	Microsoft first included support for H.264 in Windows with Windows 7, which was released in October 2009. (11/13/12 Tr. at 33 (DeVaan Testimony); Ex. 1409 at 1.) Microsoft chose to implement H.264 in Windows 7 because it was part of the standard. (11/13/12 Tr. at 34 (DeVaan Testimony).)
283	There is little need for Windows to be able to decode interlaced H.264 video content. (11/13/12 Tr. at 38 (DeVaan Testimony); 11/14/12 Tr. at 146 (Orchard Testimony).) Windows users do not commonly encounter interlaced H.264 content. (11/13/12 Tr. at 38 (DeVaan Testimony).) Based on the evidence submitted at trial, the vast majority of video used with Windows comes from Internet websites, where interlaced H.264 video is not commonly found. (11/14/12 Tr. at 147, 149 (Orchard Testimony); Ex. 592.)
289	The court concludes, based on this evidence, that Motorola's H.264 SEPs provide only minor importance to the overall functionality of Microsoft's Windows product. Windows is first and foremost an operating system designed to permit various applications to operate vis-à-vis a user. As explained by Microsoft at trial, the Windows operating system has vast functionality completely unrelated to any video playing. Only when a Microsoft Windows user chooses to play interlaced video would Windows employ the functionality of Motorola's H.264 SEPs, which in turn only provide a portion of the coding tools necessary to view the interlaced video. Moreover, the interlaced video would still play without Motorola's H.264 SEPs, it might just be 5-8 % slower.
290	The biggest use of the Xbox is to play single player games. (11/14/12 Tr. at 144-45 (Orchard Testimony).) The Xbox can also be used to play multiplayer games using the Xbox Live service. (11/15/12 Tr. at 11 (Del Castillo Testimony).) Xbox games never contain H.264 video content, whether played single-player or online via Xbox Live. (Id. at 19-20; 11/14/12 Tr. at 145 (Orchard Testimony).)
299	The court concludes, based on this evidence, that Motorola's H.264 SEPs provide only minor importance to the overall functionality of Microsoft's Xbox product. Although it is important that the Xbox have the ability to play video, the evidence suggests that much of that video will be in progressive form. Motorola points to Xbox Live as a source of such video, but Xbox Live does not support interlaced video at this time, and in the past it appears that video over Xbox Live was also in progressive form. (See 11/15/12 Tr. at 31 (Del Castillo Testimony).) Similarly, Motorola offered evidence that some AT&T U-verse content is interlaced and could be received on the Xbox after special software was added, but this software is no longer available and was installed by only 10,000 to 11,000 users out of 35 million Xbox owners. (Id. at 24.)

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308	The 802.11 Standard is a wireless communications standard colloquially known as "Wi-Fi." (11/15/12 Tr. at 48:3-10 (Del Castillo Testimony).) The 802.11 Standard comprises a set of standards that allow for companies to build products to a set of specifications for wireless local area networking. It is the de facto standard for wireless home networks. (11/15/12 Tr. at 87-89 (Gibson Testimony).)
315	The 802.11 Working Group spent seven years developing the first draft of the 802.11 Standard. (11/15/12 Tr. at 92-93 (Gibson Testimony).)
316	The Working Group issued its first standard, "IEEE 802.11," in 1997 (referred to as "802.11-1997").
317	The development of the 802.11 Standard involved the participation of many entities: over 1,000 companies participated in the standard-setting process. (11/15/12 Tr. at 94-95 (Gibson Testimony); Ex. 514.) The 802.11 Working Group has met over 130 times since its inception and has formed over 30 different task groups to develop amendments to the standard. (11/15/12 Tr. at 94-95 (Gibson Testimony).)
318	The 802.11 Standard today is immense and complex; the current version is 2,793 pages long. (Ex. 386A.)
321	The development of the 802.11 Standard dealt primarily with the implementation of well-known technologies rather than innovation. As such, the majority of the technologies available to and/or adopted by the 802.11 drafters were in the public domain and not covered by patents. (11/15/12 Tr. at 154-55 (Gibson Testimony).) Public domain technology that was incorporated into the 802.11 Standard was based on a long history of research and development done by companies, government agencies, and academic institutions. These prior technologies included the central elements of the 802.11 Standard, such as data modulation, error control coding, multiple access methods, direct sequence spread spectrum and orthogonal frequency division multiplexing. (11/15/12 Tr. at 96-97 (Gibson Testimony).)
323	Currently, the 802.11 Standard is the most widely used and universally accepted wireless communications standard for ordinary consumer and business use. (11/15/12 Tr. at 46:4-19, 77:23-78:14 (Del Castillo Testimony); 11/15/12 Tr. at 89:15-18 (Gibson Testimony).) Most homes do not have wired networks, and instead rely on 802.11 networks because 802.11 networks do not require the user to place cables all over the home. (11/15/12 Tr. at 78:1-14 (Del Castillo Testimony).) For example, Xbox users may connect the device to their network wirelessly. (Id. at 24-25.)
335	Since 1994, approximately 92 companies have identified—in LOAs—over 350 patents and 30 patent applications as essential to the 802.11 Standard.11 (11/15/12 Tr. at 99 (Gibson Testimony); Exs. 7, 1592.) Companies may also provide "blanket" LOAs to the IEEE, which do not identify specific patents. (Supra ¶ 43.) As stated previously, through "blanket" LOAs, SEP holders commit to license unspecified patents or pending applications for a particular standard. (Id.) At this time, approximately 59 companies have filed these blanket LOAs for the 802.11 Standard, including wireless communication industry leaders such as Atheros, Broadcom, Qualcomm, Research in Motion, and Intel.12 (Exs. 7, 1592.) Thus, according to the expert testimony of Dr. Lynde, there are possibly thousands of essential patents to the 802.11 Standard at any one time. (See 11/16/12 Tr. at 108-109 (Lynde).)

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336	Atheros is an example of a company that signed a blanket LOA and which owns patents that are important to the 802.11 Standard. (11/19/12 Tr. at 118-19 (Williams Testimony).)
337	Marvell also has a very valuable 802.11 portfolio and owns a few hundred issued patents essential to the 802.11 Standard. Marvell's portfolio is particularly important to the newer standards such as 802.11n. (11/14/12 Tr. at 64 (Ochs Testimony).)
339	At the time of trial, Motorola contended that 24 of its patents were essential to the 802.11 Standard. It did not analyze any other patents as essential. (11/15/12 Tr. at 102-05 (Gibson Testimony).)
347	Motorola analyzed its patents with respect to only Microsoft's Xbox product, and presented no evidence that other products, such as the Microsoft Surface, used these patents. (11/19/12 Tr. at 71 (Williams Testimony).)
348	The Xbox is a special purpose computer: its primary function is to run video games. (11/15/2012 Tr. at 8-9 (Del Castillo Testimony).) The original Xbox 360 was launched in 2005. (Id. at 13.) The Xbox contains an optical drive that it uses to load and play video games, but it can also be used to watch DVDs and listen to audio Compact Discs (CDs). (11/15/12 Tr. at 8-9 (Del Castillo Testimony).) In 2010, Microsoft introduced the Xbox 360S, which included WiFi capabilities. (Id. at 15.) The Xbox 360S uses a WiFi module made by Marvell or Atheros. (Id. at 24, 48-49.) Microsoft does not build any of the hardware necessary for WiFi connectivity. (Id. at 25.)
349	Every Xbox has an Ethernet port, so every Xbox can be connected to the Internet using a wired Ethernet link rather than a wireless connection. (Id. at 25.) The Xbox can connect to the Internet to download applications and games from the Xbox Live service. (Id. at 8-9.) Some applications allow for media streaming, such as the Netflix application. (Id.) Xbox Live allows users to play video games against or with other people over the Internet. The service also allows a customer to make financial transactions, such as buying additional content for the games that the customer plays. (Id. at 11.)
407	VTech is the world's leading manufacturer and seller of cordless telephones. (11/20/12 Tr. at 85:24-86:1 (Dailey Testimony).)
412	Motorola subsequently settled its infringement claims against VTech and provided VTech with a paid-up license under its cordless and corded phone patents for $12 million. (Ex. 13 at §§ 3.1(a)-(b) and 4.1.) As a part of the same agreement, VTech agreed to take a license to Motorola's 802.11 and H.264 Patents with a running royalty of 2.25 %. (Ex. 13 § 4.2.)
416	Dr. Murphy explained this logic: "If you look at the total value of the agreement, clearly it would be dominated by that $12 million. My understanding is that today, under the 2.25 percent, the amount VTech has paid has been very small, in the thousands, not $12 million range. And it is pretty clear . . . from the letter that was originally written that the agreement to license at those rates was tied into settling . . . the dispute with Motorola." (11/13/12 Tr. at 192:15-193:21 (Murphy Testimony).) The court agrees with Dr. Murphy and thus concludes, as Microsoft contends, that VTech would not have agreed to pay 2.25% in royalties for Motorola's 802.11 and H.264 SEP portfolios independent of the broader licensing agreement.
420	In sum, based on the foregoing, the court concludes that the VTech license agreement does not establish a RAND royalty rate and is not an indicator to what is in fact an appropriate RAND royalty rate for Motorola's 802.11 and H.264 patent portfolios in a negotiation

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	with Microsoft.
423	On June 1, 2010, Motorola and RIM entered into a second cross license agreement for various wireless communications standards, including Wi-Fi (802.11), certain cellular properties, video coding standards (including H.264), and non-essential wireless messaging patents. (Ex. 2833; 11/20/12 Tr. at 56:20-57:8 (Dailey Testimony).) In exchange for this license, RIM granted a license to Motorola under RIM's essential patents and agreed to pay a lump sum of $175 million and a running royalty rate of 1.7% of the net selling price of any mobile device sold, regardless of the number of standards the product used. (11/20/12 Tr. at 56:22-57:24 (Dailey Testimony); Ex. 2833 at MOTM_WASH1823_0025522.)
430	As a result, the court has no way of determining the value of Motorola's 802.11 and H.264 patent portfolios as distinct from Motorola's wireless cellphone portfolio and the other patents included in the RIM agreement. It is also important to the court that the uncontroverted evidence elicited at trial demonstrated that Motorola's wireless cellphone portfolio is extremely strong. (11/20/12 at Tr. 87:6-8 (Dailey Testimony).) Accordingly, the court first concludes that an agreement that licenses Motorola's cellphone portfolio as well as other Motorola patents may, in terms of value, be dominated by the cellphone portfolio, as opposed to the other patents included in the agreement.
431	Second, the RIM license agreement provides for a comprehensive settlement of a wide range of litigation between the parties, including litigation in which Motorola was seeking an exclusion order in the ITC to prevent the importation of RIM's flagship BlackBerry products. (11/20/12 Tr. at 101:22-25, 104:7-13 (Dailey Testimony).) Thus, like the VTech agreement, the RIM agreement resolves a long-lasting dispute and litigation between Motorola and the licensee. The court agrees with Microsoft that no evidence exists tending to prove that RIM would have agreed to royalties for either 802.11 or H.264 Patents alone, apart from this broader agreement that allows RIM to avoid an exclusion order on its BlackBerry products.
435	In sum, based on the foregoing, the court concludes that the RIM license agreement does not establish a RAND royalty rate and is not an indicator to what is in fact an appropriate RAND royalty rate for Motorola's 802.11 and H.264 patent portfolios in a negotiation with Microsoft.
440	For several reasons, the court concludes that the Symbol-Proxim agreement is not a good indicator of a RAND license agreement between Microsoft and Motorola for Motorola's 802.11 and H.264 SEPs
443	Third, as before, the court declines to find an agreement fashioned under duress of litigation to be indicative of a RAND license agreement. Accordingly, the court finds that the Symbol-Proxim agreement has no relevance to a proper RAND royalty rate in this case.
445	For the reasons below, the court concludes that the HHP agreement is not a good indicator of RAND in this case.
451	For the reasons below, the court concludes that the Terabeam license is a poor indicator of a RAND royalty rate in this case.
454	As a result of the foregoing, the court concludes that the Terabeam license agreement does little to show an established royalty rate commensurate with the amount of royalties

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	Motorola seeks from Microsoft in this matter for the license of its H.264 and 802.11 patent portfolios.
455	As stated, for its 802.11 SEP portfolio, Motorola seeks a royalty rate of 2.25 % of the end-product price. (11/20/12 Tr. at 140:9-141:3 (Donohoe Testimony).) Motorola expert Mr. Donohoe, however, calculated a royalty rate based on the net royalty flow accounting for the exchange of a cross license between Microsoft and Motorola. (Id. at 141:4-25.) Mr. Donohoe's calculation resulted in payments from Microsoft to Motorola at a per unit royalty of $3.00 to $4.50 or 1.15 % to 1.73 % of the average selling price of the Microsoft Xbox. (Id. at 144:1-19.) In this case, Motorola has not placed the value of Microsoft's patents at issue, and as a result, the court declines to determine the value of Microsoft's patents in determining a royalty rate. Therefore, because Mr. Donohoe's calculations are offset by payments from Microsoft to Motorola, they are artificially low.
456	There are at least 92 entities that own 802.11 SEPs. (Supra ¶ 335.) If each of these 92 entities sought royalties similar to Motorola's request of 1.15 % to 1.73 % of the end-product price, the aggregate royalty to implement the 802.11 Standard, which is only one feature of the Xbox product, would exceed the total product price. The court concludes that a royalty rate that implicates such clear stacking concerns cannot be a RAND royalty rate because such a royalty rate does not stand up to the central principle of the RAND commitment—widespread adoption of the standard. As Dr. Lynde explained, "[i]f everyone wanted the same deal [as Motorola], it would quickly make the end-product price untenable commercially." (11/16/12 Tr. at 179:1-8 (Lynde Testimony).)
457	Additionally, the court concludes that stacking concerns are heightened in this case because Motorola's 802.11 SEP portfolio provides only minimal contribution to the 802.11 Standard.
458	Similarly, for its H.264 SEP portfolio, Motorola seeks a royalty rate of 2.25 % of the end-product price, but with total yearly royalties capped at $100 to $125 million. (11/20/12 Tr. at 145:6-146:15 (Donohoe Testimony).) As with Motorola's 802.11 SEP portfolio, Mr. Donohoe calculated a royalty rate based on the net royalty flow accounting for the exchange of a cross license between Microsoft and Motorola. (Id.) Mr. Donohoe's calculation resulted in payments from Microsoft to Motorola at a per unit rate of $0.50 to $0.63 or 0.68 % to 0.84 % of the average selling price of Microsoft's H.264-compliant products. (Id.) As stated, Motorola has not placed the value of Microsoft's patents at issue, and as a result, the court declines to determine the value of Microsoft's patents in determining a royalty rate. Therefore, because Mr. Donohoe's calculations are offset by payments from Microsoft to Motorola, they are artificially low.
459	As with Motorola's 802.11 SEP portfolio, even taking Mr. Donohoe's royalty rates as accurate, Motorola's royalty request for its H.264 SEP portfolio raises significant stacking concerns. There are at least 52 entities that own H.264 SEPs. (Supra ¶ 157.) If each of these entities sought royalties similar to Motorola's request of 0.68 to 0.84 % of the end-product price, the aggregate royalty to implement the H.264 Standard, which is only one feature of Microsoft's products, would amount to 35.36 % to 43.68 % of the total product price. The court concludes that this royalty rate, like the aggregate royalty rate requested by Motorola for its 802.11 SEP portfolio, would not promote widespread adoption of the standard and therefore is not commensurate with the RAND commitment. Additionally,

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	stacking concerns are heightened in the case of Motorola's H.264 SEP portfolio because the court has determined that Motorola's H.264 SEP portfolio relates almost entirely to interlaced video—a functionality not important to Microsoft's H.264-compliant products.
460	Motorola argues that potential royalty stacking concerns have not, to date, impeded widespread adoption of the H.264 and 802.11 Standards. (See 11/13/12 Tr. at 177-79 (Murphy Testimony); 11/16/12 Tr. at 139-41 (Lynde Testimony); 11/19/12 Tr. at 148 (Schmalensee Testimony).) This argument is misplaced. In this litigation, the court is the arbiter to a dispute over whether Motorola has met its RAND obligations. Whether other SEP holders have complied with their RAND obligations says nothing as to whether Motorola has met its own RAND obligations. Stated in other words, it would make little sense for the court to decline to enforce Motorola's RAND obligations simply because other SEP owners have complied with their own obligations. Thus, the court must determine a reasonable royalty rate for Motorola's SEPs based on the principles underlying the RAND commitment, one of which is the concern of royalty stacking.
461	In sum, the court concludes that the royalty rates sought by Motorola for its 802.11 and H.264 SEP portfolios do not fall within the range of RAND royalties.
462	Generally, patent pools are created by two or more SEP owners or by an administrator of a prospective patent pool who collects SEP owners to act as licensors with the purpose of licensing SEPs to third-party licensees, and usually to the other licensors, in a single licensing package. (See, e.g., Ex. 2345 at MS-MOTO 1823 00002433307-08.)
469	Efforts to form the MPEG LA H.264 pool, which is also known as the MPEG LA AVC pool, began in June 2003, shortly after the H.264 Standard was finalized. (11/13/12 Tr. at 61:10-15 (Glanz Testimony); 11/16/12 Tr. at 94:25-95:9 (Lynde Testimony).)
470	Microsoft, Motorola, and other companies participated in efforts to form the MPEG LA H.264 patent pool. (Ex. 1584 at MS-MOTO_1823_0002353109 (listing participants); Ex. 1139 (same); 11/13/12 Tr. at 67:10-17 (Glanz Testimony).)
471	Meetings concerning the formation of the MPEG LA H.264 pool occurred before widespread implementation of the H.264 Standard. Indeed, many potential licensees waited to implement the standard until the MPEG LA pool meetings and the meetings of another pool sponsor, Via Licensing Corporation, concluded. They wanted to know the respective pool royalty rates and structures before committing to implement the H.264 Standard. (11/13/12 Tr. at 63:15-67:4, 67:5-68:1, 89:11-90:2 (Glanz Testimony).)
472	At the time the MPEG LA H.264 pool was being formed, a number of alternative video compression technologies existed that could have been used instead of the H.264 Standard, including MPEG-4 Visual, Real Video from RealNetworks, and Microsoft's own Windows Media Video. (11/13/12 Tr. at 63:21-64:8 (Glanz Testimony).) With this in mind, the parties involved in the formation of the MPEG LA H.264 pool, including Microsoft and Motorola, tried to strike a balance between setting a royalty high enough to motivate a significant number of patent holders to contribute their patents to the pool and low enough to ensure that licensees would implement the H.264 Standard rather than use an alternative. (11/13/12 Tr. at 74:13-76:5 (Glanz Testimony); Ex. 1642 (email string in which Motorola's representative to MPEG LA, Paul Bawel, noted that Motorola is "in favor of finding the right mix of terms that will result in a successful license for the marketplace").)

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473	The general framework for MPEG LA H.264 pool royalties began to take shape during a two-day meeting on July 31 and August 1, 2003. (Ex. 1581; Ex. 1139; 11/13/12 Tr. at 72:21-73:10 (Glanz Testimony).) At that meeting, Microsoft was represented by Garrett Glanz, and Motorola was represented by Paul Bawel. (11/13/12 Tr. at 62:7-11, 67:10-16 (Glanz Testimony).) The main focus of this two-day meeting was the royalty amount per codec (a combination of an encoder and a decoder) and whether to apply annual caps or some other form of volume discount. (11/13/12 Tr. at 68:23-69:2, 85:20-25 (Glanz Testimony).)
474	During the meetings, Mr. Glanz took detailed notes of the views expressed by the representatives of the approximately eighteen participating companies, including the views expressed by Motorola. (11/13/12 Tr. at 72:21-73:10 (Glanz Testimony); Ex. 1139.)
475	On behalf of Motorola, Mr. Bawel criticized elements of one proposal that called for uncapped royalties for codecs that implement the main and extended profiles of H.264 of between $0.20 and $1.50 per unit depending on volume as being "too expensive for mobile" devices and stated that Motorola was strongly in favor of annual caps. (Ex. 1139 at MS-MOTO_1823_00003927604-05; 11/13/12 Tr. at 80:8-9, 80:19-81:1 (Glanz Testimony).) Mr. Bawel said that if the proposal with uncapped royalties was adopted, it would lead mobile manufacturers like Motorola to choose to implement video compression technologies other than H.264. (11/13/12 Tr. at 80:19-81:1 (Glanz Testimony).)
476	Mr. Bawel later indicated that, as between two other proposals, Motorola favored a proposal that provided for royalties ranging from $1.00 per unit down to $0.20 per unit based on volumes above 50,000 (sales below that would be royalty-free) subject to annual caps of either $2 million per business unit or $8-10 million per enterprise. (Ex. 1581 at MS-MOTO_1823_00003927558-62 (slide deck for MPEG LA's presentation at 7/31-8/1/03 Meeting of AVC Essential IP Holders); Ex. 1139 at MS-MOTO_1823_00003927611-12 (Glanz's notes from MPEG LA's 7/31-8/1/03 meeting); 11/13/12 Tr. at 82:19-84:25, 86:6-10 (Glanz Testimony).)
477	On August 5-6, 2003, both Microsoft and Motorola participated in a separate meeting convened by Via Licensing Corporation ("Via"), a competitor of MPEG LA's that was also trying to establish an H.264 patent pool. At that meeting, Motorola outlined the specific royalty structure it wished to have adopted: $0.25 for manufacture and sale of each codec with annual caps of $2 million. (11/13/12 Tr. at 87:4-88:11 (Glanz Testimony); Ex. 1583 (Glanz's notes from 8/4-8/5/03 Via Licensing meeting).) The amounts were a total royalty to be divided among all owners of H.264 SEPs, assuming they could be persuaded to participate in the pool. (See id.)
478	The MPEG LA meetings eventually led to a consensus on royalties in the fall of 2003, which was expressed in a November 17, 2003, "News Release." The release was intended to publicize the proposed pool royalties so that potential licensees would proceed to implement H.264 while the MPEG LA pool members worked out detailed agreements and terms. (Ex. 1584 (MPEG LA's November 17, 2003, News Release); 11/13/12 Tr. at 88:21-24, 89:11-90:2 (Glanz Testimony).) The News Release announced royalties of $0.20 per codec after the first 100,000 units (which were at no charge) and $0.10 per unit above 5 million units with an annual cap of $3.5 million in year one and scaling up to $5 million

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	over the licensing term. (Ex. 1584 (MPEG LA's November 17, 2003, News Release) at 2-3.)
479	Motorola approved the November 2003 "News Release" including these announced royalties and caps. (11/13/12 Tr. at 64:9-66:23(Glanz Testimony) (identifying and describing Ex. 1584 and explaining that Motorola had agreed to the terms reflected in the press release); Ex. 1179 at MS-MOTO_1823_2353356 (email from P. Bawel of Motorola to L. Horne of MPEG LA approving terms of release).)
480	After receiving feedback on the terms announced in November 2003, MPEG LA made changes to the royalty structure relating to the distribution of video content. (11/13/12 Tr. at 91:20-92:7 (Glanz Testimony).) Motorola agreed with those changes as well, stating that it was "in favor of finding the right mix of terms that will result in a successful license for the marketplace." (Ex. 1642 at MS-MOTO_1823_00002352332; 11/13/12 Tr. 91:20-92:21 (Glanz Testimony).)
481	MPEG LA issued a final press release on May 18, 2004, confirming the same basic per codec royalty and caps as in the November 17, 2003, News Release. (Ex. 1625 (email string discussing draft of final press release); Ex. 1626 (MPEG LA's May 18, 2004, press release); 11/13/12 Tr. at 93:3-94:12 (Glanz Testimony).) Motorola approved the terms of MPEG LA's May 18, 2004, press release. (Ex. 1625; Ex. 1626; 11/13/12 Tr. at 93:3-94:12 (Glanz Testimony).)
482	It was understood during the formative discussions among the MPEG LA H.264 pool participants that the revenue sharing model would parallel that in MPEG LA's predecessor MPEG-2 and MPEG-4 Visual patent pools. Each contributing licensor would receive a share of the total pool based on the licensor's number of SEPs relative to the total number of SEPs in the pool for the country in question (e.g., a contributor of one patent in a pool of 100 patents would receive 1 %). (11/13/12 Tr. at 62:12-63:11, 131:19-132:7 (Glanz Testimony).)
483	Motorola did not object to this allocation method during the formation of the MPEG LA H.264 pool, nor did it state that its patents were more valuable than, or deserved a higher royalty than, the average pool patent. (11/13/12 Tr. at 95:5-10, 131:25-132:11 (Glanz Testimony).)
484	Indeed, Motorola was familiar with the earlier pools on which MPEG LA H.264 was modeled. Motorola participated as a licensor in the earlier MPEG LA MPEG-4 Visual patent pool, which involved similar video compression technology and involved royalty rates and caps similar to those proposed for the MPEG LA H.264 pool. (11/16/12 Tr. at 92:10-93:4, 94:6-14, 101:5-17 (Lynde Testimony); 11/13/12 Tr. at 85:13-17 (Glanz Testimony).) Motorola contributed and licensed through the MPEG LA MPEG-4 Visual pool at least one of the patents that it currently claims is essential to the H.264 Standard. (11/16/12 Tr. at 93:5-10 (Lynde Testimony).)
485	In explaining its decision to join the MPEG LA MPEG-4 Visual pool as a licensor, Motorola characterized the royalty rates of the pool as reasonable, observing that participation would provide Motorola with "a simple business solution for most of the patent issues at reasonable rates." (Ex. 71 at MOTM_WASH1823_0505113; 11/16/12 Tr. at 93:11-94:14 (Lynde Testimony).) Motorola further observed that participation in the MPEG-4 Visual pool would allow Motorola to "recover a significant portion of the

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	royalties" it would be obligated to pay, while "the cost of negotiating [its] own agreements for all the companies involved [would] cost more than the royalties it could expect to receive." (Ex. 71 at MOTM_WASH1823_0505113.)
486	On July 7, 2004, Microsoft formally joined the MPEG LA H.264 pool as both a licensor and a licensee by executing (a) the MPEG LA Agreement Among Licensors Regarding the AVC Standard, which included the royalty structure outlined in the May 18, 2004, press release and the apportionment method described above; (b) the MPEG LA Licensing Administrator Agreement Regarding the AVC Standard; and (c) the AVC Patent Portfolio License. (Exs. 1141, 1636, 3087.)
487	On July 14, 2004, Microsoft learned that Motorola had decided not to join the MPEG LA H.264 pool. Microsoft received no explanation for this decision beyond the information contained in an email from MPEG LA's CEO, Larry Horne, stating that Motorola had sold the patent on which it had predicated its pool membership. (11/13/12 Tr. at 122:7-1 (Glanz Testimony); Ex. 124.)
488	The MPEG LA H.264 pool currently includes approximately 275 U.S. SEPs and over 2,400 SEPs worldwide. (Ex. 1152.) Those SEPs have been contributed by twenty-six licensors including leading technology firms such as Apple, Cisco, Ericsson, Fujitsu, LG, Microsoft, and Sony. (Ex. 1152; 11/16/12 Tr. at 85:18-21, 90:11-91:20 (Lynde Testimony).)
489	Over 1,100 licensees participate in the MPEG LA H.264 patent pool. (11/16/12 Tr. at 85:18-21, 94:22-24 (Lynde Testimony).)
490	Pursuant to the form MPEG LA H.264 pool agreement, licensees agree that if they or their affiliates have H.264 SEPs, they will license them to pool licensors on RAND terms. This arrangement is based on the presumption that the licensor's per patent share of the royalties paid by the licensee represent RAND terms for the licensee's SEPs. (Ex. 3087 at § 8.3; 11/16/12 Tr. at 95:25-97:19 (Lynde Testimony).)
491	The MPEG LA H.264 patent pool charges royalties to licensees for products that incorporate an H.264 codec according to the following schedule: the first 100,000 units are royalty-free; for unit volumes between 100,000 and 5 million, the royalty is $0.20 per unit; and for unit volumes above 5 million, the royalty rate is $0.10 per unit. (Ex. 3087 at § 3.1.1; 11/13/12 Tr. 65:7-17, 95:14-20 (Glanz Testimony); Ex. 1626.)
509	As explained above, a RAND royalty should be set at a level consistent with the SSOs' goal of promoting widespread adoption of their standards. (11/13/12 Tr. at 139:17-140:1, 203:14-18 (Murphy Testimony).) Here, the evidence before the court is clear: the MPEG LA H.264 patent pool has achieved widespread adoption of the H.264 Standard. The pool includes approximately 275 U.S. SEPs and over 2400 SEPs worldwide from over 26 licensors including leading technology firms such as Apple, Cisco, Ericsson, Fujitsu, LG, Microsoft and Sony. (Ex. 1152; 11/16/12 Tr. at 85:18-21, 90:11-91:20 (Lynde Testimony).) Additionally, there are over 1,100 licensees of the MPEG LA H.264 patent pool. (11/16/12 Tr. at 85:18-21, 94:22-24 (Lynde Testimony).) The court concludes that the MPEG LA H.264 pool royalty rate has been set such that it is consistent with the purpose of the RAND commitment.

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510	The evidence also shows that Microsoft, Motorola, and other industry companies, in working to form the MPEG LA H.264 patent pool, tried to strike a balance between setting a royalty high enough to motivate a significant number of patent holders to contribute their patents to the pool and low enough to ensure that licensees would implement the H.264 Standard rather than use alternatives. (11/13/12 Tr. at 74:13-76:5 (Glanz Testimony); Ex. 1642 (email string in which Motorola's representative to MPEG LA, Paul Bawel, noted that Motorola is "in favor of finding the right mix of terms that will result in a successful license for the marketplace").) This practice nicely aligns with two cornerstones of the RAND obligation: (1) SSOs seek to include advanced technology to create valuable standards, while at the same time, (2) ensuring widespread adoption.
514	Because the characteristics of the MPEG LA H.264 pool closely align with all of the purposes of the RAND commitment, the court concludes that the pool rate is a strong indicator of a RAND royalty rate for Motorola's H.264 patent portfolio.
518	Google is a sophisticated, substantial technology firm. Google's agreement (as the parent of Motorola Mobility and General Instrument) to the grant-back license provisions in the MPEG LA-Google H.264 patent pool agreement further corroborates that the MPEG LA H.264 pool arrangement is an appropriate benchmark for determining RAND royalties in this case. (11/16/12 Tr. at 95: 15-24, 97:4-11 (Lynde Testimony).)
528	Motorola's technical expert, Timothy Drabik, offered no opinion as to whether Motorola's patents are more or less valuable than the patents in the MPEG LA H.264 pool. (11/19/12 Tr. at 60:16-23 (Drabik Testimony).)
529	Likewise, Kirk Dailey—the current head of patent transactions for Google and the former Corporate Vice President of Intellectual Property for Motorola who authored the October 2010 demand letters that gave rise to this dispute—did not know if Motorola's H.264 Patents are more valuable than the average patent in the H.264 pool. (11/20/12 Tr. at 34:25-35:20, 110:11-15 (Dailey Testimony); Exs. 1, 2.)
530	Mr. Dailey did not know if Motorola's portfolio of H.264 SEP portfolio "ranks in the top half or the bottom half of companies contributing patented technology to that standard." (11/20/12 Tr. at 68:6-10 (Dailey Testimony).) Indeed, Motorola never made any claim that its patents were particularly valuable or that it was entitled to greater compensation during the formation of the MPEG LA H.264 patent pool. (11/13/12 Tr. at 95:5-10, 131:25-132:11 (Glanz Testimony).)
531	Additionally, the court conducted a comprehensive and detailed examination of the importance of each patent in Motorola's H.264 SEP portfolio to the H.264 Standard or to Microsoft's products. This examination revealed that although some of the patents contributed to the H.264 Standard, others provided only minimal contribution due to the availability of alternative technology. The examination further revealed that, of the patents contributing to the H.264 Standard, Motorola did not provide the inventive technology, but instead built upon already-existing technology.
532	Moreover, all but two of Motorola's H.264 SEPs are directed towards interlaced video, a technology that the court determined was not overly important to either Windows or the Xbox as those products utilized the H.264 Standard. And, as explained by the court above, of the two patents not directed towards interlaced video, only one of those would be used by Microsoft products.

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533	Finally, the court concludes that Motorola's H.264 SEP portfolio only constitutes a sliver of the overall technology incorporated in the H.264 Standard. Indeed, the largest technology contributor to the H.264 Standard was Telenor Group, which contributed many of the core innovations of H.264 and submitted the August 1999 proposal that became the basis of the first draft of the design. (11/13/12 Tr. at 215 (Sullivan Testimony); 11/14/12 Tr. at 115 (Orchard Testimony).) Telenor decided not to seek patents on its contributions and notified the JVT of its decision. (11/14/12 Tr. at 52 (Sullivan Testimony); 11/14/12 Tr. at 115 (Orchard Testimony).)
534	In addition to Telenor's contribution to the standard, there are at least 2,500 patents throughout the world that are essential to the H.264 Standard. (11/14/12 Tr. at 110-13 (Orchard Testimony).) Of those 2,500 patents, over 360 are United States patents. (See Ex. 1544.)
535	Approximately 33 United States companies have enumerated their declared-essential H.264 Patents. All of these patents are subject to the RAND commitment. Nineteen additional companies have provided "blanket" LOAs to the ITU obligating their patents to the RAND commitment. (See Ex. 1544.)
536	In sum, Motorola did not demonstrate that its H.264 SEP portfolio provided significant contribution to the H.264 Standard or would provide significant technological value to Microsoft's products.
537	Accordingly, the court holds that the RAND royalty for Motorola's H.264 SEP portfolio with respect to all Microsoft products utilizing the H.264 Standard is 0.555 cents per unit.
548	Via Licensing formed its 802.11-essential patent pool between 2003 and 2005: between six years and eight years after the IEEE Working Group issued its first 802.11 Standard in 1997. (11/16/12 Tr. at 107:11-13 (Lynde Testimony); 11/15/12 Tr. at 92:20-93:11 (Gibson Testimony).)
550	On or about April 15, 2004, while the Via Licensing 802.11 patent pool was being formed, Motorola submitted a patent for evaluation to Via Licensing for potential inclusion in the pool. (4/18/12 R. Sonnentag Dep. at 34:13-16, 35:16-25; Ex. 45.)
551	Via Licensing's independent evaluator—Robert Sachs of Fenwick & West—determined that the patent Motorola submitted was not essential to the 802.11 Standard. (4/18/12 R. Sonnentag Dep. at 45:8-10, 45:17-21, 46:4-8; Ex. 12.) Motorola was therefore unable to participate in the discussions which led to the setting of the Via Licensing 802.11 patent pool royalty rates. (Exs. 43, 44.)
562	Based on this evidence, the court concludes that the Via Licensing 802.11 patent pool is an indicator of a RAND royalty rate for Motorola's 802.11 SEP portfolio, albeit not as strong an indicator as the MPEG LA H.264 patent pool. (11/13/12 Tr. at 159:9-11 (Murphy Testimony) ("I think [the Via Licensing 802.11 patent pool is] probably the best [indicator of RAND] we have.").)
570	Using this proportional share for Motorola's 802.11 SEP portfolio, Motorola's royalties from Microsoft under the Via Licensing 802.11 pool are easily calculated as 10.19 % of Microsoft's total payments into the pool in a given year. The uncontested evidence is that Microsoft's 2011 product volume for 802.11 Standard compliant products was 14,263,000. (Ex. 1167.) Pursuant to the rate schedule of the Via Licensing 802.11 patent pool, the per unit royalty rate would have been $0.20. (Ex. 1167.) Accordingly, Microsoft's total

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	payments into the pool for 2011 would have been $2,852,600.00, of which Motorola would have received 10.19 %, or $290,680.00. Using this total payment and dividing by the number of 802.11-complaint Microsoft products, Motorola would have received $0.02038 per unit (= $290,680.00 / 14,263,000) in 2011.
575	Further, in its hypothetical negotiation, the court must consider the importance of the 11 Motorola SEPs that Microsoft does use. Evidence at trial showed that each of the 11 patents provides very minimal technical contribution to the identified portions of the 802.11 Standard. Additionally, the record was clear that Motorola did not provide the inventive technology in any area of the 802.11 Standard, but instead built upon already existing technology.
576	Finally, the court must consider Motorola's contribution in relation to the standard as a whole. The amount of technology involved in the 802.11 Standard is immense. Indeed, the contributions by the University of Hawaii in developing ALOHAnet constitute the basis for the 802.11 Standard. (11/15/12 Tr. at 90-91 (Gibson Testimony).) Additionally, the 802.11 Working Group spent seven years developing the first draft of the 802.11 Standard. (Id. at 92-93.) Over 1,000 companies have participated in the development of the 802.11 Standard. (Id. at 94-95; Ex. 514.) The 802.11 Standard today is large and complex; the current version is 2,793 pages long. (Ex. 386A.) Approximately 92 companies have identified essential patents or submitted blanket LOAs to the IEEE. With this large scale contribution in mind, the court finds that Motorola's 11 relevant SEPs constitute only a sliver of the overall technology incorporated into the 802.11 Standard.
578	Microsoft uses, as an additional comparable for a Microsoft-Motorola 802.11 RAND rate, the royalty rate that a third-party company, Marvell Semiconductor, Inc. ("Marvell"), pays for the intellectual property in its WiFi chips. The court agrees that the Marvell rate provides an indicator for 802.11 RAND under Factor 12 of the hypothetical negotiation because the experiences of Marvell, a third-party, tend to establish what is customary in the business of semiconductor licensing.
579	Marvell designs and markets semiconductor chipsets that provide 802.11 functionality for a variety of products, including the Microsoft Xbox. (11/19/12 Tr. at 114:21-25, 115:1-3 (Williams Testimony).) WiFi chips, such as the Marvell WiFi chips used in the Xbox, are commodity products sold by many different companies. (Id. at 115:4-7.) Marvell manufactures and sells its chips to Microsoft, Motorola, Sony and others, which the companies incorporate into products as diverse as the Sony Playstation and the Audi A8 automobile. (11/14/12 Tr. at 63:2-10 (Ochs Testimony).) Though the products are diverse, each company incorporates the Marvell chips into its products for the same reason: to provide 802.11 functionality.
580	The main purpose of the Marvell WiFi chip is to implement the 802.11 Standard: the chip has no other use than to provide 802.11 functionality to a host product. (11/14/12 Tr. at 61:16-18 (Ochs Testimony).) When embedded into a device such as an Xbox, the WiFi chip enables the device to use the 802.11 Standard to transmit and receive information on radio frequency carriers. Otherwise stated, the WiFi chip uses the 802.11 Standard to enable a host device to communicate wirelessly. (11/19/12 Tr. at 114:10-20 (Williams Testimony).) The Marvell chip contains the vast majority of what is needed to provide 802.11 functionality in a product like the Xbox. (11/14/12 Tr. at 61:11-12 (Ochs

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	Testimony).)
581	Microsoft currently pays just under $3.00 per Marvell chip to provide 802.11 functionality to the Xbox gaming console. (11/15/12 Tr. at 25:6-9 (Del Castillo Testimony).) In the past, Marvell has charged $3.00 to $4.00 per chip for WiFi chips of the kind it sells to Microsoft. (11/14/12 Tr. at 61:19-21 (Ochs Testimony).)
582	Marvell pays a royalty and licensing fees to ARM Holdings ("ARM")—a software company—on each $3.00-4.00 chip Marvell makes. ARM Holdings is an English company that specializes in creating software and other tools that enable customers to design and make "embedded microprocessors," such as the Marvell WiFi chips. (11/16/12 Tr. at 12:8-13 (Lynde Testimony).) ARM provides Marvell with the patent licenses and "design and know-how" Marvell needs to make its 802.11-compliant chips. In exchange, Marvell pays ARM a royalty of 1 % of the purchase price of the chip (3-4 cents per chip). (11/14/12 Tr. at 71:15-21 (Ochs Testimony).) The ARM license and royalty package includes not only the patents required to build these chips, but also the instructions the customer can use to develop the product. (11/16/12 Tr. at 120:8-13 (Lynde Testimony).)
583	According to Jennifer Ochs, Marvell's Director of Intellectual Property Litigation, Marvell considers the 1 % royalty rate it pays to ARM a reasonable "high ceiling" of what a semiconductor company should pay for an intellectual property royalty. (11/14/12 Tr. at 70:24-25, 71:1 (Ochs Testimony).)
584	This "high ceiling" determination is based partially on the fact that ARM licenses not only patents, but also directions on how to design necessary elements of the chip. (11/14/12 Tr. at 71:5-8 (Ochs Testimony); see also 11/16/12 Tr. at 120:8-13 (Lynde Testimony).) Ms. Ochs's testimony suggested that a company should pay less than a 1 % royalty rate for a patent-only license agreement—one that does not contain ARM's additional intellectual property. (See 11/14/12 Tr. at 70:24-25, 71:1 (Ochs Testimony).)
585	Marvell also considers the ARM rate an appropriate benchmark because the rate is based on the selling price of the chip, not the sale price of the end-user product into which the chip is embedded. According to Ms. Ochs, the denominator in the royalty calculation must be the price of the chip rather than the price of the user end-product because even a low royalty rate applied to an expensive end-product would quickly outstrip Marvell's profit margins on its chips. (See 11/14/12 Tr. at 68, 69:1-3 (Ochs Testimony).) For example, a 1 % royalty on a chip placed in an $80,000.00 Audi A8 would be $800.00, or about 267 times the retail price of the chip. (See id. at 69:1-3.) Ms. Ochs further testified that, not only would a royalty rate based on the consumer end product often be cost-prohibitive, it would also be impractical because when Marvell sells the chips it usually does not know their intended end use. (11/14/12 Tr. at 68:5-25, 69:15-16 (Ochs Testimony).) Finally, the chips provide the same functionality in each host device regardless of the end cost of the device, so it is logical that the royalty rate be the same across all devices. (See id. at 62:17-20.) Likely because of these reasons, Ms. Ochs testified that she had never heard of a chip maker paying a running royalty on the end-product price of its consumers' products. (Id. at 70:7-10.)
586	Ms. Ochs finally testified that, because the risk of "royalty stacking" inflates the impact of any royalty on a company's bottom line, even a 1 % royalty is a "high ceiling" benchmark. This is because the profit margin on semiconductor chips is narrow, and several royalty

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	payments can quickly subsume a company's expected profits. (See 11/14/12 Tr. at 70:1-6 (Ochs Testimony).) Indeed, "you can't pay too many royalties before you just run out of profit." (Id. at 70:2-3.)
587	Thus, the court concludes that Marvell's experience with the ARM rate shows that the 1 % rate represents a reasonable "high ceiling" royalty rate in semiconductor intellectual property licensing.
590	Marvell's experience with the ARM royalty rate provides the court with a royalty rate "that may be customary in the particular business." Id. So, the court considers a royalty rate of 1 % per 802.11-enabling chip, between 3 and 4 cents per chip (depending on the chip's final sale price) an indicator of a RAND rate for Motorola's 802.11 SEP portfolio.
591	In 2003, InteCap specialized in valuing patent portfolios. In particular, InteCap was in the business of evaluating patent portfolios for the purpose of maximizing the royalty income that could be obtained through monetization of patents. (11/16/12 Tr. at 126:12-20 (Lynde Testimony).)
592	InteCap evaluated Motorola's 802.11 SEP portfolio in 2003 and proposed a licensing model that segmented licensing markets and target companies into three categories or "Links": Link-1 comprised companies that made 802.11 chipsets; Link-2 comprised companies that made 802.11-dedicated devices like routers and access points; and Link-3 comprised companies that made 802.11-enabled consumer products like laptops, PCs, and gaming consoles. (Ex. 65 at CRA_001290 (identifying addressable markets for potential 802.11 licensing).)
593	According to InteCap's report, when considering licensing in the 802.11 context, "[i]ndustry royalty stacking issues must be addressed/recognized." (Ex. 65 at CRA_001289; 11/16/12 Tr. at 127:7-22 (Lynde Testimony).) InteCap's valuation model therefore recognized that the following factors must be accounted for in setting a royalty: "802.11 feature factor," which InteCap defined as the "Value of 802.11 functionality related to [the] total product functionality"; and "Royalty stacking adjustment factor," which InteCap defined as the "Factor to address [the] portion of total 802.11 functionality enabled by Motorola IP." (Ex. 65 at CRA_001290, CRA_001314 (describing InteCap's 802.11 Valuation Model Framework); 7/12/12 D. Curtis Dep. at 46:2-12.)
594	For Link-3 companies—802.11-enabled products like PCs, laptops, and game consoles—the "feature factor" employed by InteCap was 10 % of the product's end price. The application of this factor had the effect of reducing the base to which any royalty was applied by 90 % before any other adjustments were made. (Ex. 65 at CRA_001315 ("802.11 feature factor-percent of sales [=] 0.10"); 7/12/12 D. Curtis Dep. at 42:2-20.)
595	InteCap's valuation model assumed a 25 % stacking factor based on the assumption that Motorola held 25 % of all 802.11 SEPs. The record here shows that this assumption clearly overemphasizes the relative size and importance of Motorola's 802.11 SEP portfolio at issue in this litigation. (11/16/12 Tr. at 129:3-15 (Lynde Testimony); see also id. at 108:21-109:9 (Lynde Testimony) (stating there are thousands of patents essential to the 802.11 Standard); 11/14/12 Tr. at 64:7-9 (Ochs Testimony) (Marvell has a few hundred issued U.S. 802.11 Patents); Ex. 65 at CRA_001288 (InteCap's analysis assumed Motorola owned 14 802.11 technically or commercially essential patents).)

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596	When accounting for the feature and stacking adjustment factors, InteCap's model resulted in an effective royalty of 0.1 % on the price of the products of Link-3 companies. This royalty would have been applied to products embedded with 802.11 functionality, including PCs, laptops, and game consoles, such as the Xbox. (7/12/12 D. Curtis Dep. at 56:8-14 (Q: . . . "[T]he final royalty rate that is produced in the model is 0.1 percent of the laptop selling price, correct? A. Correct . . . ."); Ex. 6, at MOTO-MS-000237738 ("Assumptions: Net Royalty Rates 0.1 % of sales . . . ."); Ex. 65, at CRA_001291 (applying Valuation Model); Ex. 66, at CRA 001708 (same).)
603	For the following reasons, the court concludes that the InteCap evaluation is an indicator of an appropriate RAND royalty rate for Motorola's 802.11 SEP portfolio.
605	The InteCap evaluation also accounted for stacking issues—an important principle of the RAND commitment—by considering the portion of the total 802.11 Standard enabled by Motorola's intellectual property. Again, this precise consideration is found in the court's hypothetical negotiation, which examines the importance of the SEP to the standard.
606	Additionally, in 2003, InteCap was in the business of evaluating patent portfolios for the purpose of licensing patents—and, in the case, evaluating Motorola's 802.11 SEP portfolio. The evidence supports the conclusion that InteCap attempted to provide Motorola with a licensing recommendation that would comport with Motorola's RAND obligation. Thus, pursuant to Factor 12 of the court's RAND-modified Georgia-Pacific analysis, the court concludes that parties in a hypothetical negotiation would consider the InteCap evaluation as an effort by a company in the business of licensing (RAND) patents to fashion a RAND royalty rate. Because of the minimal contribution of Motorola's patents, reasonable parties to a hypothetical negotiation would recognize that Motorola's 802.11 SEP portfolio is not worth more than the portfolio that InteCap evaluated in 2003.
607	In sum, the methodology of the InteCap evaluation exhibits certain characteristics of a RAND royalty rate, making the evaluation an appropriate indicator of RAND. The strength of the InteCap evaluation as an indicator is, however, diminished by the evaluation's over-exaggeration of the relative importance of Motorola's 802.11 SEP portfolio to the 802.11 Standard. The court has attempted to adjust for this overestimation, but without concrete evidence to accurately make such adjustments, the accuracy of the InteCap indicator is placed into question. Accordingly, the court concludes that parties to a negotiation would view the InteCap evaluation as an indicator of a RAND royalty rate, but would consider it less important than the Via Licensing Pool or the Marvell Wi-Fi chip.
608	The InteCap evaluation suggested a 0.1 % royalty on Link 3 products, such PCs, laptops, and game consoles. Link 3 products would naturally include the Xbox game console, which typically sold for between $200.00 and $400.00. (11/15/12 Tr. at 13 (Del Castillo Testimony).)
609	Thus, a RAND royalty rate based on InteCap as an indicator would be between 20 and 40 cents per unit.
610	However, the court concludes that InteCap overestimated the importance of Motorola's 802.11 SEP portfolio to the 802.11 Standard by assigning the portfolio a value of 25% of the entire 802.11 Standard. Having carefully examined the importance of Motorola's 802.11 SEP portfolio with respect to Microsoft, the court concludes that the InteCap evaluation applied to Motorola's current 802.11 SEP portfolio overstates its importance by

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	at least a factor of 25. The testimony of Dr. Gibson corroborates this conclusion. Dr. Gibson estimated that Motorola's 802.11 SEP portfolio is less than 1% of the overall technology in the 802.11 Standard. (11/15/12 Tr. at 154 (Gibson Testimony).)
611	The court concludes that Microsoft and Motorola acting reasonably in a hypothetical negotiation would view the importance of Motorola's 802.11 SEP portfolio as vastly inferior to InteCap's estimate and would accordingly adjust the royalty rate produced by the InteCap evaluation downward by a factor of 25. The adjusted InteCap evaluation produces a royalty rate of between 0.8 and 1.6 cents per unit.
621	Accordingly, the court adopts the rate of 3.471 cents per unit as the rate Microsoft and Motorola would agree to for a license to Motorola's 802.11 SEP portfolio acting reasonably in a hypothetical negotiation in light of the RAND commitment
Page 6	To decide whether Motorola's opening offers were in good faith, a fact-finder must be able to compare them with a reasonable RAND royalty rate and, because more than one rate could conceivably be RAND, a reasonable RAND royalty range. However, as the court ruled on October 10, 2012, the RAND royalty rate is a heavily disputed, fact-sensitive issue that must be resolved by a finder of fact. (10/10/12 Order at 22.) Accordingly, the court held a bench trial to determine: (1) a RAND royalty range for Motorola's SEPs; and (2) a specific RAND royalty rate for Motorola's SEPs. The purpose of this is to enable a fact-finder in a later trial to determine whether Motorola's offer letters breached Motorola's RAND obligation to offer a license for its patents in good faith.
Page 130	Through its licensing expert, Mr. Donohoe, Motorola contends that it is entitled to a royalty rate of 2.25 % of the net selling price of Microsoft's Windows and Xbox products in exchange for a license to its H.264 and 802.11 SEP portfolios. Motorola seeks this amount as value for its patent portfolios and is indifferent as to whether the value is in the form of monetary payment, a grant-back license, or another form of compensation. (11/20/12 Tr. at 149-50 (Donohoe Testimony) ("Q: . . . [W]hat you're saying is that Motorola wants 2.25 percent, and doesn't really care whether it's compensated in cash, or in grant-back, but it wants 2.25 percent? A: That's correct.").)
Page 130	Specifically, with respect to Motorola's 802.11 SEP portfolio, Mr. Donohoe selected 2.25% of the end-product price as the applicable rate for Motorola's patents, and using this rate, he calculated the total payments that Microsoft would have made based on annual revenues in the fiscal year 2010 to 2011. (11/20/12 Tr. at 140:9-141:3 (Donohoe Testimony).) Mr. Donohoe then picked a royalty rate ranging from 0.25 to 0.5 % for Microsoft's 802.11 SEP portfolio, and using this rate, Mr. Donohoe calculated the total payments that Motorola would have made to Microsoft based on annual revenues of unidentified Motorola products in the fiscal year 2010 to 2011. (11/20/12 Tr. at 141:4-25 (Donohoe Testimony).) Mr. Donohoe then subtracted the amount Motorola would pay to Microsoft from the amount Microsoft would pay to Motorola and determined that Microsoft would have made a net payment to Motorola of $36 to $54 million in the fiscal year 2010 to 2011. Applying this amount to the number of Xbox units sold in that time period, Mr. Donohoe calculated a per unit royalty of $3.00 to $4.50 or 1.15 % to 1.73 % of average selling price of the Microsoft Xbox. (11/20/12 Tr. at 144:1-19 (Donohoe Testimony).)

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Page 131	Similarly, with respect to Motorola's H.264 SEP portfolio, Mr. Donohoe applied a 2.25% end-product price royalty to unidentified Microsoft and Motorola products and determined that a net annual payment (for some unidentified year or years) from Microsoft would have been $137 million. He then capped the payment at $100 to $125 million and converted that payment range into a per unit range of $0.50 to $0.63, which he expressed as a rate of 0.68 to 0.84 %. (11/20/12 Tr. at 145:6-146:15 (Donohoe Testimony).)
Page 131	In this case, as previously explained, Motorola has not placed the value of Microsoft's patents at issue, making it impossible for the court to determine the value of any of Microsoft's patents. In any event, regardless of the form of compensation, Motorola's position is that its 802.11 SEP portfolio is worth 2.25 % of the net selling price of Microsoft's products, and that its H.264 SEP portfolio is worth the same rate with yearly payments capped at $100 to $125 million. To support this position, Mr. Donohoe, Motorola's licensing expert, addressed Georgia-Pacific Factor 1, which examines the royalties received by the patentee for licensing the patents in suit, proving or tending to prove an established royalty. Mr. Donohoe discussed: (1) a 2011 license agreement between MMI and VTech Telecommunications Ltd. ("VTech"); (2) a 2010 patent cross license agreement between Motorola and Research In Motion Limited ("RIM"); and (3) three agreements entered into by Symbol before it was acquired by Motorola. (11/20/12 Tr. at 138:5-140:23 (Donohoe Testimony); Exs. 13, 36-38, 2833.)
Page 207	In conclusion and as explained herein, the court concludes as follows: • The RAND royalty rate for Motorola's H.264 SEP portfolio is 0.555 cents per unit; the upper bound of a RAND royalty for Motorola's H.264 SEP portfolio is 16.389 cents per unit; and the lower bound is 0.555 cents per unit. This rate and range are applicable to both Microsoft Windows and Xbox products. For all other Microsoft products using the H.264 Standard, the royalty rate will be the lower bound of 0.555 cents. • The RAND royalty rate for Motorola's 802.11 SEP portfolio is 3.471 cents per unit; the upper bound of a RAND royalty for Motorola's 802.11 SEP portfolio is 19.5 cents per unit; and the lower bound is 0.8 cents per unit. This rate and range are applicable to Microsoft Xbox products. For all other Microsoft products using the 802.11 Standard, the royalty rate will be the low bound of 0.8 cents per unit.

B. The Court's Other Prior Orders

6/6/12 Order ECF 335, at page 19	A standard essential patent owner who has made a commitment to grant licenses on RAND terms cannot preemptively request exorbitant compensation for its standard essential technology, and compel the implementer to negotiate in good faith in response to the exorbitant demand.
6/6/12 Order ECF 335, at page 25	A standard essential patent owner who has made a RAND commitment may not make blatantly unreasonable offers to implementers. Such behavior would frustrate the purpose behind the agreements by allowing the standard essential patent owner to abuse its power as a standard essential patent holder and extract higher than reasonable royalty rates (or, at a minimum, royalty rates consistently on the high range of RAND terms). Thus, although the language of the LOAs do

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	not require the SEP owner to make offers on RAND terms, any offer made (be it an initial offer or an offer during a back-and-forth negotiation) must comport with the implied duty of good faith and fair dealing inherent in every contract."
6/6/12 Order ECF 335, at pp. 25-26	"To determine whether Motorola's offers were so blatantly unreasonable as to breach its duty of good faith, it is necessary in this instance to compare the offer against a true RAND royalty rate."
11/30/12 Order ECF 607, at pp. 13-14	"As Microsoft has committed to accept a license on RAND terms for Motorola's entire H.264 standard essential patent portfolio, and the litigation is continuing to determine the details of such a license, it is now clear that at some point in the future (either by agreement of the parties or by court adjudication) a license agreement for the Motorola Asserted Patents will become a reality."

DATED this 19th day of August, 2013.

RESPECTFULLY SUBMITTED,

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CERTIFICATE OF SERVICE

I, Florine Fujita, swear under penalty of perjury under the laws of the State of Washington to the following:

1. I am over the age of 21 and not a party to this action.

2. On the 19th day of August, 2013, I caused the preceding document to be served on counsel of record in the following manner:

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